Moller Investment Group, Inc.

Mr. Jerry Wickham, P.G.
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Former USA Service Station No. 57
10700 MacArther Boulevard, Oakland CA
(Fuel Leak Case No. RO0000232)

Dear Mr. Wickham:

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document, I report to be true and correct to the best of my knowledge.

If you have any questions, please contact me at (805) 299-8214.

Sincerely,

Mr. Charles Miller
Moller Investment Group
6951 Collins Drive, Suite E-11
Moorpark, CA 93021

STRATUS
ENVIRONMENTAL, INC.

3330 Cameron Park Drive, Ste 550
Cameron Park, California 95682
**(530) 676-6004** ~ Fax: (530) 676-6005

September 8, 2010
2007-0057-01

Mr. Jerry Wickham, P.G.
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502
(via GeoTracker)

Subject: Work Plan for Post-Excavation Soil Gas Survey
Former USA Service Station No. 57
10700 MacArthur Boulevard
Oakland, California

Dear Mr. Wickham:

Stratus Environmental, Inc. (Stratus) has prepared this *Work Plan for Post- Excavation Soil Gas Survey (Work Plan)*, on behalf of Moller Investment Group, Inc. (MIGI), for Former USA Service Station No. 57 (the Site), located at 10700 MacArthur Boulevard, Oakland, California (see Figures 1 and 2). In October 2009, Stratus collected soil gas samples from about 4 and 9 feet below ground surface (bgs) at 20 general locations spaced in a grid pattern near the former service station (see Figures 3 and 4 for sample locations and analytical results for total petroleum hydrocarbons as gasoline [TPHG] and benzene in these samples).

In a letter dated February 13, 2009, Alameda County Environmental Health Services (ACEHS) requested that a Corrective Action Plan (CAP) be prepared for the subject site. Using data from the October 2009 soil gas survey and historical soil analytical data, and based on verbal concurrence with ACEHS personnel that remediation goals should focus on mitigating petroleum hydrocarbon impact to shallow soil, Stratus recommended that soil excavation be used as the remedial approach for the subject site (CAP, dated February 10, 2010, and CAP Revisions, dated May 12, 2010). In letters dated March 30, 2010, and May 24, 2010, ACEHS concurred with Stratus' recommendation to complete an excavation at the subject property. ACEHS also specified, in the March 30, 2010 letter, that confirmation soil gas sampling be performed after completion of the excavation.

The soil excavation remediation project was recently completed at the subject site. The work consisted of removing over 5,000 tons of soil from the site, and backfilling of the excavation cavity with clean engineering fill material. The location of the excavation cavity is included on Figure 2.

In order to comply with ACEHS's request for confirmation soil gas sampling, Stratus has prepared this *Work Plan*, which proposes to collect soil gas samples within the fill material used in backfilling of the excavation cavity. Details associated with implementation of the proposed soil gas sampling work are provided in the following subsections of this document.

## PROJECT APPROACH

In order to assess post excavation levels of petroleum hydrocarbon vapors in the shallow subsurface, Stratus is proposing to collect soil gas samples at 9 locations (SGS-1 through SGS-9, see Figure 5 for locations). Instead of collecting soil gas samples in a grid pattern, as was done during the October 2009 soil gas survey, Stratus is proposing to focus soil gas sampling on areas where the highest levels of petroleum hydrocarbons were detected in shallow soil vapor during the October 2009 work. The new sampling locations will be situated in very close proximity to the October 2009 sampling locations that contained high levels of contaminants; a surveyor will be retained in order to identify these historical sampling positions. Soil gas samples will be collected at both 5 and 10 feet bgs at each of the 9 specified locations, as was specified by ACEHS in the March 2010 letter. To maintain consistency with previous work, the procedure for collecting soil gas samples will be very similar to work performed in October 2009. Stratus intends to retain the same drilling contractor to install the soil gas sampling equipment in the subsurface, and utilize the same analytical laboratory to perform sample analyses work.

The scope of work has been subdivided into tasks 1 through 5. All geologic and soil gas survey work will be conducted under the direct supervision of a State of California Registered Geologist or Civil Engineer, and in accordance with standards established by the Department of Toxic Substances Control (DTSC), the California Regional Water Quality Control Board (Los Angeles Region, [LARWQCB]), ACEHS, Alameda County Public Works Agency (ACPWA), and United States Environmental Protection Agency (USEPA) guidelines.

### Task 1: Prefield Activities

Following approval of this document by ACEHS, the following activities will be implemented:

- Retain a C-57 licensed well driller to complete the work,
- Update the site-specific Health and Safety Plan,
- Secure a drilling permit from ACPWA,
- Mark the proposed soil gas sampling locations, and
- Notify Underground Service Alert, the property owner, ACPWA, and ACEHS of the scheduled field activities.

## Task 2: Surveying

In order to select sampling locations SGS-1 A/B through SGS-9 A/B, Stratus will visit the site with a representative of Morrow Surveying, Inc. of West Sacramento (the contractor who surveyed the October 2009 sampling locations). After identifying the position of specified sampling locations from October 2009, Stratus will stake a new sampling location at the same general position identified by the surveyor. The surveying contractor will collect any additional measurements at this time to ensure that the locations of SGS-1 A/B through SGS-9 A/B are surveyed to the Geotracker standard. Survey data will be uploaded to the Geotracker database, as required by AB2886, following subsequent collection of the samples at the surveyed locations.

## Task 3: Soil Gas Sample Borings, Sampling, and Borehole Destruction

A C-57 licensed well driller will advance soil borings SGS-1 A/B through SGS-9 A/B using the direct push method, under the direction of a Stratus Geologist/Scientist, at the positions identified by Morrow Surveying and Stratus under the Task 2 scope of work. Upon reaching the base of the borehole, the drilling rods will be extracted from the borehole. The drilling contractor will then install a polyethylene soil vapor implant (Environmental Service Products Part No. SVPT-91, or similar) attached to 0.25-inch diameter Teflon tubing, or similar, near the base of the borehole. A filter pack of graded sand will be placed around the soil vapor implant, and granular bentonite will be placed within the remaining annular space of the borehole up to surface grade.

Once the soil vapor implants have been installed, Stratus will wait approximately 7 days before commencing with collection of the soil vapor samples. Prior to sampling, the approximate air volume situated inside of the Teflon tubing and the filter pack sand surrounding the soil vapor implant will be calculated. Stratus will then use an expendable Summa Canister to purge this ambient air. Following purging of the ambient air, a separate Summa Canister will be used to collect each soil gas sample. During filling of the canisters, the flowrate will be regulated to fill at a rate between 100 and 200 milliliters per minute (ml/min). A tracer gas leak check (using 1,1-difluoroethane [1,1-DFA]) will be used to assess potential leakage within the sampling train. Leak

detection will be evaluated by periodically spraying the outside of the sample train assembly with 1,1-DFA during filling of the Summa Canisters.

Following collection of the soil gas samples, the well drilling contractor will re-mobilize to the site in order to properly abandon the boreholes. The soil vapor implants will be removed from the subsurface using direct push coring equipment and the boreholes will be backfilled to surface grade with neat cement.

Drill cuttings and wastewater generated during the field activities will be contained in DOT-approved 55-gallon steel drums. The drums will be appropriately labeled and stored at the site pending proper disposal. A licensed contractor will transport the soil and wastewater to an appropriate facility for disposal.

### Task 4: Laboratory Analysis

Air samples will be forwarded to a California state-certified laboratory for chemical analysis under strict chain-of-custody procedures. The soil gas samples will be analyzed for TPHG, benzene, toluene, ethylbenzene, total xylenes, methyl tertiary butyl ether (MTBE), naphthalene, and for the leak detection tracer gas (1,1-DFA) using USEPA Method TO-15.

### Task 5: Report Preparation

A report will be prepared and submitted to document the findings of the soil gas survey. The report will include a scaled site plan illustrating soil gas sampling locations, analytical data summary tables, certified analytical reports, surveying data, and a discussion of the findings of the investigation.

## SCHEDULE

Following approval of this *Work Plan*, Stratus will promptly forward a drilling permit application package to ACPWA for approval. Once the drilling permit package has been approved, approximately 5 days will be necessary until the soil gas survey work can be implemented (ACPWA requirement). A report will be submitted within approximately three weeks of receiving the analytical results of the soil gas samples.

If you have any questions or comments concerning this document, please contact Gowri Kowtha at (530) 676-6001 or Scott Bittinger at (530) 676-2062.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

Scott G. Bittinger, P.G.
Project Geologist

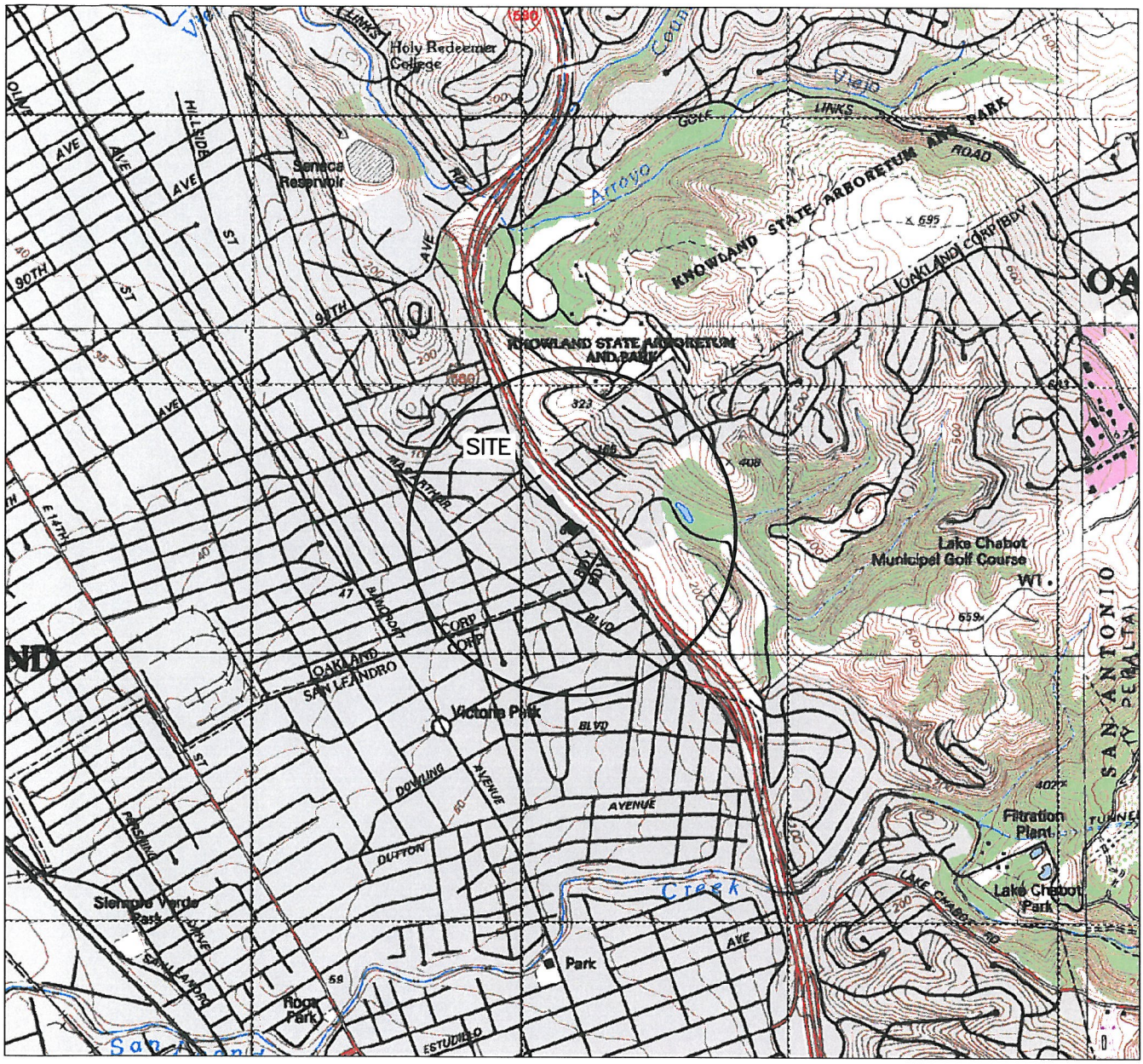
Gowri S. Kowtha, P.E.
Project Manager

REGISTERED PROFESSIONAL ENGINEER
GOWRI SHANKAR KOWTHA
No. C 63413
Exp. 09/10
CIVIL
STATE OF CALIFORNIA

Attachments:

| | | |
|---|---|---|
| Figure 1 | Site Location Map |
| Figure 2 | Site Plan |
| Figure 3 | October 2009 Concentrations of TPHG and Benzene in Soil Gas, 4 Feet bgs |
| Figure 4 | October 2009 Concentrations of TPHG and Benzene in Soil Gas, 9 Feet bgs |
| Figure 5 | Locations of Proposed Post-Excavation Soil Gas Samples |

cc: Mr. Charles Miller, Moller Investment Group, Inc.




GENERAL NOTES:
BASE MAP FROM U.S.G.S.
OAKLAND, CA
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1980

North

QUADRANGLE LOCATION

0 2000 FT

SCALE 1:24,000

STRATUS ENVIRONMENTAL, INC.

FORMER USA SERVICE STATION NO. 57
10700 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

SITE LOCATION MAP

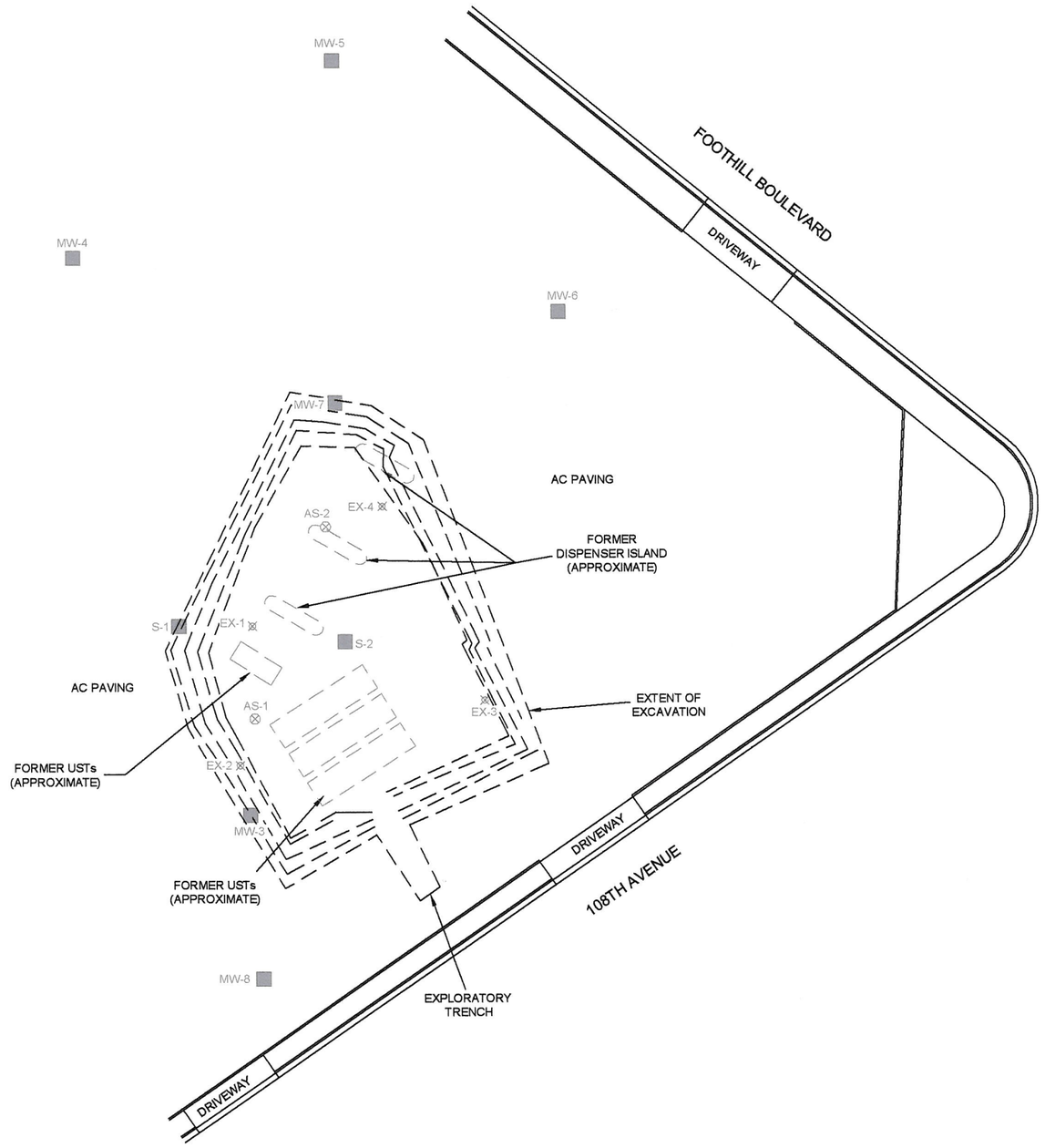
FIGURE
1

PROJECT NO.
2007-0057-01

USA57\Quarterly JMP REV September 2, 2010 USA 57 Site Location Map

LEGEND

- MW-6 ABANDONED MONITORING WELL LOCATION
- AS-1 ABANDONED AIR SPARGE WELL LOCATION
- EX-1 ABANDONED EXTRACTION WELL LOCATION




STRATUS ENVIRONMENTAL, INC.

0 40 FT

SCALE

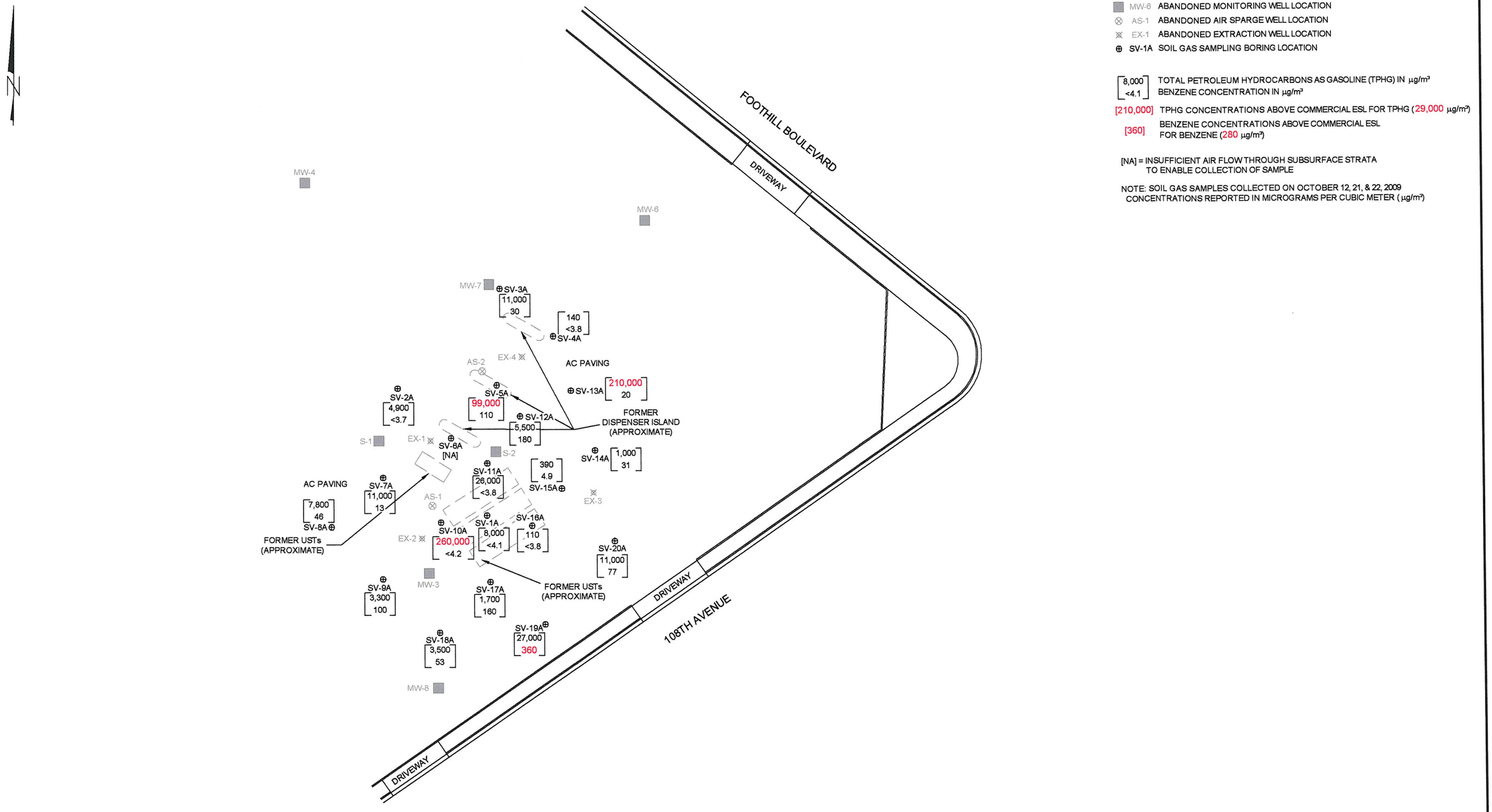
FORMER USA SERVICE STATION NO. 57
10700 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

SITE PLAN

FIGURE
2

PROJECT NO.
2007-0057-01

USA57\Workplan\090210 JMP REV September 2, 2010 USA 57 NSiteplan




LEGEND

- MW-6 ABANDONED MONITORING WELL LOCATION
- AS-1 ABANDONED AIR SPARGE WELL LOCATION
- EX-1 ABANDONED EXTRACTION WELL LOCATION
- ⊕ SV-1A SOIL GAS SAMPLING BORING LOCATION

[8,000 / <4.1] TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (TPHG) IN µg/m³ / BENZENE CONCENTRATION IN µg/m³

[210,000] TPHG CONCENTRATIONS ABOVE COMMERCIAL ESL FOR TPHG (29,000 µg/m³)

[360] BENZENE CONCENTRATIONS ABOVE COMMERCIAL ESL FOR BENZENE (280 µg/m³)

[NA] = INSUFFICIENT AIR FLOW THROUGH SUBSURFACE STRATA TO ENABLE COLLECTION OF SAMPLE

NOTE: SOIL GAS SAMPLES COLLECTED ON OCTOBER 12, 21, & 22, 2009
CONCENTRATIONS REPORTED IN MICROGRAMS PER CUBIC METER (µg/m³)

STRATUS ENVIRONMENTAL, INC.

0 40 FT
SCALE

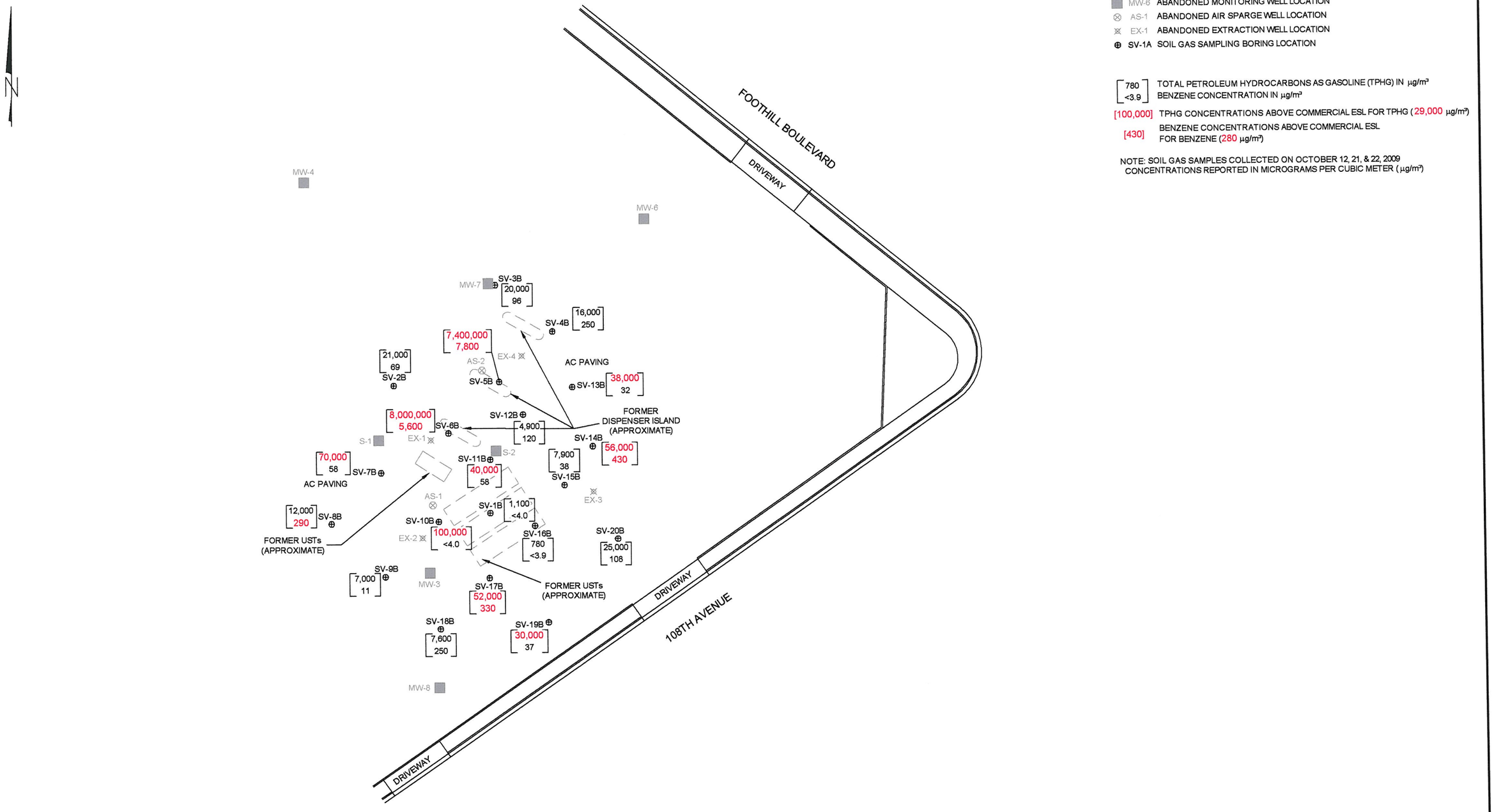
FORMER USA SERVICE STATION NO. 57
10700 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

OCTOBER 2009 CONCENTRATIONS OF
TPHG AND BENZENE IN SOIL GAS, 4ft bgs

FIGURE
3

PROJECT NO.
2007-0057-01

USA57\Workplan\090210 JMP REV September 2, 2010 USA 57 NSoil Plan




LEGEND

- MW-6 ABANDONED MONITORING WELL LOCATION
- AS-1 ABANDONED AIR SPARGE WELL LOCATION
- EX-1 ABANDONED EXTRACTION WELL LOCATION
- SV-1A SOIL GAS SAMPLING BORING LOCATION

[780 / <3.9] TOTAL PETROLEUM HYDROCARBONS AS GASOLINE (TPHG) IN µg/m³ / BENZENE CONCENTRATION IN µg/m³

[100,000] TPHG CONCENTRATIONS ABOVE COMMERCIAL ESL FOR TPHG (29,000 µg/m³)

[430] BENZENE CONCENTRATIONS ABOVE COMMERCIAL ESL FOR BENZENE (280 µg/m³)

NOTE: SOIL GAS SAMPLES COLLECTED ON OCTOBER 12, 21, & 22, 2009
CONCENTRATIONS REPORTED IN MICROGRAMS PER CUBIC METER (µg/m³)

STRATUS ENVIRONMENTAL, INC.

0 40 FT
SCALE

FORMER USA SERVICE STATION NO. 57
10700 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

OCTOBER 2009 CONCENTRATIONS OF
TPHG AND BENZENE IN SOIL GAS, 9ft bgs

FIGURE
4

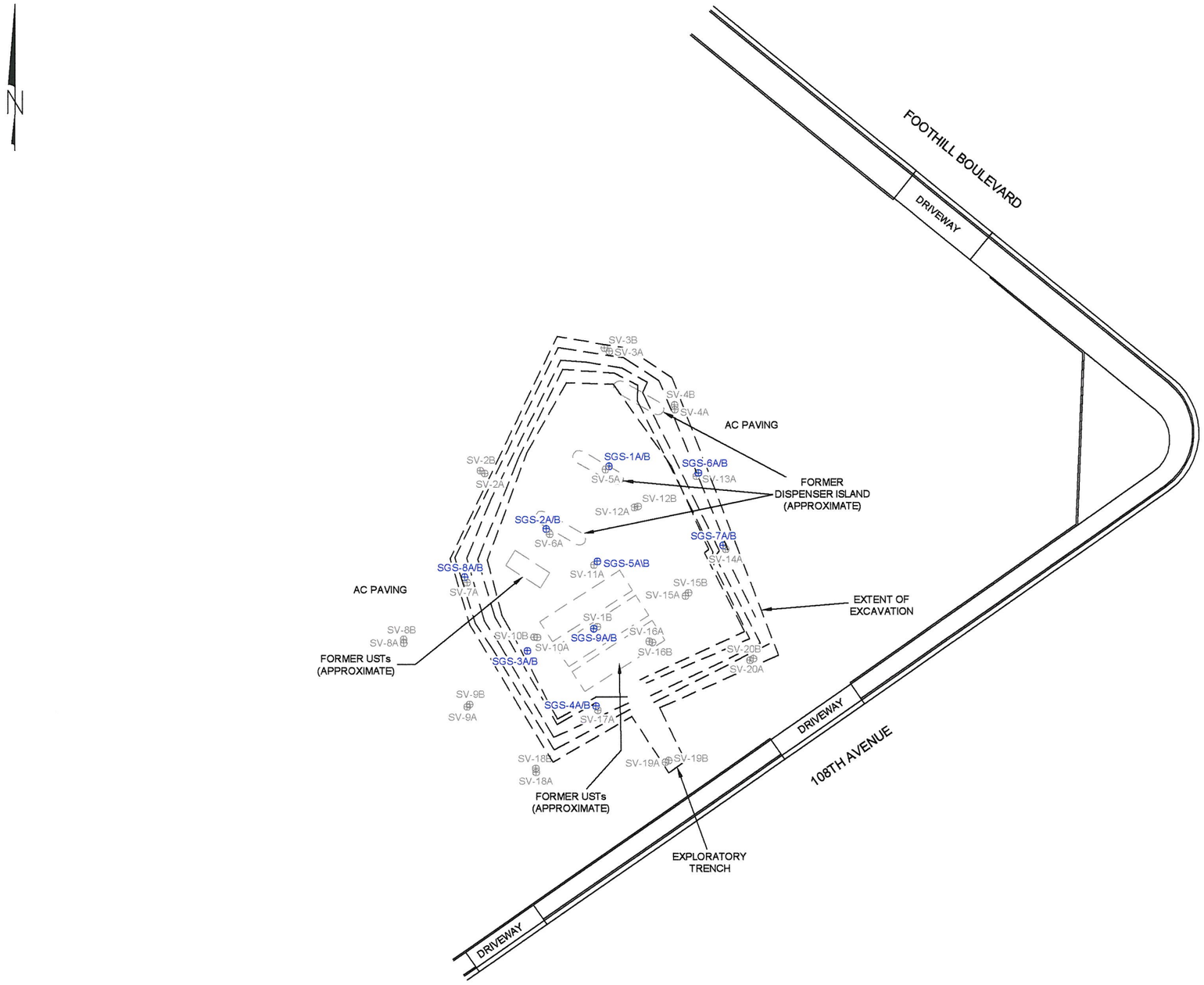
PROJECT NO.
2007-0057-01

USA57\Workplan\080210 JMP REV September 2, 2010 USA 57 NSoil Plan

LEGEND

⊕ SV-1A PRE-OVEREXCAVATION SOIL GAS SAMPLING BORING LOCATION (OCTOBER 2009)

⊕ SGS-1 PROPOSED POST-OVEREXCAVATION SOIL GAS SAMPLING BORING LOCATION




STRATUS ENVIRONMENTAL, INC.

0 40 FT

SCALE

FORMER USA SERVICE STATION NO. 57
10700 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

LOCATIONS OF PROPOSED
POST-EXCAVATION SOIL GAS SAMPLES

FIGURE
5

PROJECT NO.
2007-0057-01

USA57\Workplan\090210 JMP REV September 2, 2010 USA 57 Proposed Plan